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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,545	02/05/2004	Joo Young Kim	P/2803-57	6099

2352 7590 07/21/2004

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EXAMINER

WAMBACH, MARGARET R

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 07/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,545

Applicant(s)

KIM, JOO YOUNG

Examiner

Margaret R Wambach

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,13 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 3-6,9-12,14-16 and 21-23 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 2/5/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and drawings teach that the first and second holes are located adjacent, not above, the first and second holes.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 7, 8, 13, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following terms lack a clear antecedent basis: In claim 7, "the light emitter", in claim 8, "the remaining section", in claim 13, "the infrared ray blocking function" and "the transparent", in claim 17, "the light emitter" and in claim 18, "the remaining section".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Figures 1a and 1b of Applicant's disclosed prior art (hereafter "Applicant's prior art") and Weaver et al (hereafter "Weaver").

Referring to Figures 1a and 1b and pages 3 through 7 of the specification, an apparatus for counting the rotation frequency of a numeral wheel of a meter for a remote meter reading system is taught (see the last paragraph of page 2) as recited in claim 2. More particularly, a meter in which the numeral value of a numeral wheel counter formed with a plurality of numeral wheels (11a and 11b are numeral wheels) accumulatively increases in proportion to the usage amount of a supply comprising:

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A light reflection means (20) which is attached on part of the outer surface of a predetermined numeral wheel of the counter so that a surface of the light reflection means having a high reflection rate is directed to the outside and which reflects an incident infrared ray (from 22a) while rotating with the numeral wheel (see page 4, lines 8-16, for instance);

A light sensor unit (22) in which two independent holes are formed on one side of a case made of an opaque material (page 3, line 17) , and an infrared ray emitter, which receives a driving pulse signal (page 6 describes how pulse generator 30 applies a driving pulse signal to the emitter) and intermittently emits an infrared ray (Figure 2a shows that the driving pulse is intermittent, thus the infrared ray would be generated intermittently as well), is disposed inside a first hole and an infrared ray sensor, which outputs an electric signal in proportion to the light amount of an infrared ray (page 6 discusses increasing the magnitude of the driving pulse to increase the amplitude of the infrared ray, thus they are proportional) flowing into a second hole, is disposed inside the second hole (page 3, line 11 and Figure 1B teach that optical sensor unit 22 houses both sensor 22b and emitter 22a and it is clear from both the specification and the Figures that there must be at least one hole for light to travel into the inner mechanism of the sensor and at least another hole for light to travel from the inner mechanism of the emitter insofar as optical sensors and emitters include apertures which are, essentially, holes);

a micom (35) which calculates the usage amount of the supply by counting the output electric signal from the infrared sensor to recognize the

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rotation frequency of the numeral wheel (the last paragraph of page 6 continuing onto page 7); and

a power supply means which supplies power needed for the light sensor unit and the micom by using a battery source , and in particular, provides the infrared emitter with the driving pulse signal (the last paragraph of page 6 continuing onto page 7 and the second paragraph of page 7).

The difference between the invention recited in claim 2 and Applicant's prior art is that Applicant's prior art is lacking a light blocking cover which prevents external light from entering a space between the light sensor unit and the numeral wheel on which the light reflection means is attached and the light sensor unit is not inserted into an aperture formed on a part on the top side surface or the bottom side surface of a meter cover, said part corresponding to the location on the numeral wheel, on which the light reflection means is attached.

The difference between the invention recited in claim 19 and Applicant's prior art is that Applicant's prior art is lacking a teaching that the sensors be slanted to form a vertex.

These differences are taught by Weaver. Referring to Figure 3 of Weaver, it can be seen that a light sensor unit (46) is inserted in an aperture (meter cover 30 has an indentation for 46 to sit inside) formed on a part on the top side surface or the bottom side surface (30 is the bottom cover) of a meter cover. Furthermore, Weaver also teaches a light blocking cover as recited in claim 2 (column 5, second paragraph teaches a cover with flanges which blocks ambient

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light.) Lastly, Figure 4a of Weaver shows that the sensors and emitters, and thus the holes made by their apertures) are slanted to form a vertex.

To produce the invention of claim 2 it would be necessary to modify Applicant's prior art such that the cover of Applicant's prior art is indented to receive a light sensor unit, as taught by Weaver and the bottom cover of Applicant's prior art is altered in the fashion of the bottom cover of Weaver. To produce the invention of claim 19, it would be necessary to slant the holes of the light emitters as taught by Weaver.

With regard to the first alteration, motivation is provided by the fact that the light sensor unit is less likely to be dislodged if fixed in an indentation because it would be held by forces of friction as well as whatever fasteners may be employed. The motivation for altering the bottom cover of Applicant's prior art such that it is light blocking like Weaver's is provided by Weaver's explanation that it would "minimize effects of ambient light on the photo sensing functions". Motivation for slanting the sensors and the emitters to form a vertex is provided by the fact that slanting both outside sensors inward would minimize intrusion of ambient light 66.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's prior art and Weaver as applied to claims 2 and 19 above, and further in view of Ishikawa et al (hereafter "Ishikawa").

As explained in the prior rejection, Applicant's prior art and Weaver obviate the limitations of claim 2 from which claim 20 depends. What cannot be derived from a combination of Applicant's prior art and Weaver is a teaching for

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making the inside walls of the first and second holes to be a light reflection film.

This difference is taught by Ishikawa. More specifically, the last paragraph of column 9 and the first paragraph of column 10 teach coating a "cavity" of an infra red sensor with a "reflection film". Insofar as the holes of Applicant's prior art were interpreted as the apertures within any sensor or emitter through which light must be allowed to travel, the cavity of Ishigawa is completely synonymous with an aperture or a hole.

To produce the invention of claim 20, the combination of Applicant's prior art and Weaver must be modified to cover the inside of the holes with the reflection film of Ishigawa.

Motivation for such a modification is provided by Ishigawa's disclosure that coating the cavity of an infra-red sensor improves "absorption of ... infra red rays".

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter: Claim 1 has not been rejected under prior art because there was no teaching found, inter alia, for a detachable light sensor housing where part of the detachable light sensor housing covers the numeral wheel counter and is transparent with an infrared blocking function. It should be understood; however, that the examiner has not yet reviewed the references cited on applicant's I.D.S. which, from the description in applicant's specification, appear to be relevant.

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Claims 7, 8, 13, 17 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret R Wambach whose telephone number is (571)272- 1756. The examiner can normally be reached on Monday, Tuesday, Thursday and Friday 6am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on (571)272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Margaret R. Wambach
Primary Examiner